Practice: 443 - Irrigation System, Surface and Subsurface

Scenario: #1 - Surge Valve & Controller

Scenario Description:
This scenario would typically include installation and utilization of a 10-inch surge valve with automated controller (including all appurtenances) and installation labor needed to convert from a conventional surface irrigated system to a surge irrigation system. Typical field size is 80 acres. The surge valve will be used with PVC Gated Pipe or PE Gated Tubing to convey and distribute irrigation water to alternating irrigation sets in a timed surge cycle that results in a reduced surging irrigation application. The surging action increases rate of advance along set length, reduces deep percolation at upper end of field, increases uniformity of application along row length, and on lower intake soils can significantly reduce runoff losses. The result is improved irrigation efficiency, reduced leaching and erosion losses, and conserved energy. This scenario does not include gated pipe or associated practices.

Resource Concerns: Insufficient Water - Inefficient use of irrigation water, and Degraded Plant Condition - Undesirable plant productivity and health, Water Quality Degradation - Excess nutrients in surface and ground waters, Water Quality Degradation - Excessive sediment in surface waters, and Inefficient Energy Use - Equipment and facilities


Before Situation:
Unacceptable irrigation application uniformity along existing surface irrigation system furrow or border length caused by excessive run length or soil infiltration rate when operated with continuous inflow on existing system. System is over irrigated in attempt to adequately irrigate low end of field.

After Situation:
A surge surface irrigation system is in place. After implementation, distribution uniformity and irrigation efficiency is improved, by reducing irrigation application volume and deep percolation losses. Runoff reductions, reduced energy use, and air quality improvements can also result.

Scenario Feature Measure: Number of Surge Valves

Scenario Unit: Each

Scenario Typical Size: 1

Scenario Cost: $2,230.43  
Scenario Cost/Unit: $2,230.43

Cost Details (by category):

<table>
<thead>
<tr>
<th>Component Name</th>
<th>ID</th>
<th>Component Description</th>
<th>Unit</th>
<th>Price ($/unit)</th>
<th>Quantity</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Labor</strong></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>General Labor</td>
<td>231</td>
<td>Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.</td>
<td>Hour</td>
<td>$20.63</td>
<td>2</td>
<td>$41.26</td>
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<tr>
<td><strong>Materials</strong></td>
<td></td>
<td></td>
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<tr>
<td>Surge Valve And Controller</td>
<td>1477</td>
<td>Surge Valve and Controller, with appurtenances. Material cost includes valve, controller, all appurtenances, and mobilization.</td>
<td>Each</td>
<td>$2,189.17</td>
<td>1</td>
<td>$2,189.17</td>
</tr>
</tbody>
</table>